

REMARKS

Claims 1-25 and 119-143 are pending in the present application. All claims have been rejected. The present response is an earnest effort to advance the application to allowance.

Claims 1, 6, 9, 10, 11, 14, 22, 119, 124, 127, 128, 129, 132, and 140 have been amended. Claims 2, 3, 7, 120, 121, and 125 have been cancelled without prejudice. Reconsideration is respectfully requested.

A. § 112 REJECTIONS

Claims 1, 11, 12, 14, 119, 129, 130, and 132 stand rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner objects to the phrase "without individual containers for each set or monitoring a physical location correlated to a pre-defined coordinate system". This rejection is respectfully traversed.

The basis for this rejection is the allegation that "the piping that conveys the seed in an air stream is a container as it contains the seed within a space. A coordinate system is inherent based on the fact that one can discern location of the seed set in the system using the parameters discussed in part c of the claim". Office Action, page 2, last paragraph.

The test of definiteness is whether the claim has a clear and definite meaning to one skilled in the art when read in light of the complete patent application. *Union Pacific Res. Co. v. Chesapeake Energy Corp.*, 236 F.3d 1625 (Fed. Cir. 2001).

Applicants' specification repeatedly discusses how harvested sample sets of seed can be introduced into the process, and each set's identity tracked and preserved through conveyance between a number of operations. Applicants' claims and specification set forth several specific

ways this can be done (e.g. monitoring state of conveying, monitoring timing, or monitoring the operation being performed on a set of seed). Both prior and present Office Actions have cited references which either utilize a container for seed and/or a physical coordinate system to keep track of where things are (e.g. Bhide and Keller). The objected-to phrase in Applicants' Claims 1 and 119 explicitly excludes those two ways (containers or coordinate systems). It is respectfully submitted that Applicants' specification enables one skilled in the art to understand embodiments of how Applicants' claimed invention is practiced. And the law presumes the Bhide and Keller specifications do the same.

Furthermore, the language of Claims 1 and 119 is that each set of seed is conveyed segregated from other sets from input to output "without an individual container for each set". The Examiner's objection to that phrase is the argument that a tube is a container. However, the actual language of the claim relates to the exclusion of an individual container for each set of seed. Such is clear from the claim language and from the Applicants' specification.

Finally, the language of Claims 1 and 119 is that each set of seed is conveyed segregated from other sets from input to output "without...monitoring a physical location correlated to a pre-defined physical space coordinate system." A tube or other conveyor does not meet this limitation. As pointed out in prior responses, some of the cited references literally have an X-Y-Z positioner. Any movement of the working component of the positioner can be tracked by sensors which reveal its X, Y, and Z coordinates within a physical, pre-defined space. Claims 1 and 119 are method claims. Applicant's claims 1 and 119 neither explicitly or implicitly include any type of "pre-defined coordinate system" which can be monitored. The material limitation of lack of a pre-defined physical space coordinate system is a material part of the claim and its meaning is clear to one skilled in the art. There is no physical coordinate system pre-defined in

the embodiments described in Applicants' specification. In other words, there is no way described to monitor where a set of seed might be along a tube at any moment. In contrast, the pre-defined coordinate system of references Bhide and Keller are clear and can do so.

Claims 11, 12, 129, and 130 stand rejected under 35 U.S.C. § 112 because of insufficient antecedent basis for the phrase listed at numbered paragraph 3 of page 3 of the Office Action.

Claims 11 and 129 have been amended to change "the state" to "a state" to moot this rejection.

Claims 14 and 132 stand rejected under 35 U.S.C. § 112 as lacking antecedent basis for the phrase "the seed samples". The dependency of these claims has been changed to moot that rejection.

B. § 103 REJECTIONS

All the claims have been rejected as obvious. These will be addressed in order presented in the Office Action.

1. Claims 1-18, 20 and 23 -- Bhide in view of Dawson

Claims 1-18, 20 and 23 stand rejected under 35 U.S.C. § 103(a) on the basis of Bhide 6,150,158 in view of Dawson U.S. 5,957,304. This rejection is respectfully traversed.

A prima facie case of obviousness under Section 103 requires a showing that Bhide and Dawson:

- (1) is "analogous art" (*i.e.* (a) in the field of endeavor of the invention or (b) reasonably pertinent to the problem being solved by the invention);
- (2) teaches (is enabling under §112);
- (3) a reason, suggestion, or motivation to modify;

- (4) in a manner which appear to show or suggest the claimed invention to one of ordinary skill in the art (a factual analysis using the *Graham v. Deere*¹ legal framework: What is the "state of the art"? (i.e. what is the relevant or correct prior art to consider?) What is the level of ordinary skill in the art? (i.e. from what viewpoint do we consider what is or is not obvious?) What are the differences between the prior art and claims at issue? (i.e. how close is the prior art to the claimed idea?)

The combination of Bhide and Dawson does not present a *prima facie* case of obviousness. For example, page 3, numbered paragraph 6 of the Office Action alleges that Bhide discloses elements (c) and (d) of Applicant's claims 1 and 119. This is incorrect. As previously pointed out in the record, Bhide has a complicated robotic system that lifts individual seeds and places them into individual wells of an indexing tray.² The individual seeds germinate and grow into plants. The plants are then analyzed. No disclosure or teaching of handling plural sets of loose seed through a plurality of operations, and then collecting a subset of each set at the exit is found in Bhide. Claims 1 and 119 specifically describe introducing sets of seed into the system, performing operations on each set, and accumulating the set or a subset of each set at the end while monitoring progression through the system. Bhide places seeds in an index tray. The seed never leaves the indexing tray as it grows into a plant. There is no accumulation of seed at the end of the Bhide methodology. On that basis alone, the rejection of claims 1-18, 20, and 23 for obviousness is not supported by either Bhide alone or Bhide in combination with Dawson.

¹ 383 U.S. 1 (1966).

² Bhide has been described in detail in prior responses of record. Those discussions are incorporated by reference herein.

But further, Bhide is simply not analogous to the claimed invention. It is neither in the relevant field of the claimed invention or pertinent to the solution of the problem addressed by the present invention.

In contrast, each of Bhide and Dawson address different problems. As the Federal Circuit has stated, in evaluating obviousness "The problem solved by the invention is always relevant." *In re Wright*, 838 F.2d 1216, 6 U.S.P.Q.2d 1959, 1961 (Fed. Cir. 1988).

If a prior art reference is directed towards solving a different problem, one skilled in the art would be less likely to consider the teachings of the prior art reference in solving the problem addressed by the inventor. "A reference is not available under 35 U.S.C. § 103 if it is not within the field of the inventor's endeavor and was not directly pertinent to the particular problem with which the inventor was involved." *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 226 U.S.P.Q. 403 (Fed. Cir. 1985).

Bhide is directed to reducing manual labor in picking up tens of individual seeds and placing each in its own small well of a multi-well index tray. The claimed invention has batches of plural seed that must be conveyed between multiple processing operations between an input and output. While it also is trying to reduce manual labor, it is trying to process batches of seed, not place individual seeds in individual tray wells so the seed can germinate and grow in each well.

Dawson is directed to a mobile machine that moves through and harvests crops in a field. It tries to solve how to sort portions of a continuous stream of harvested crop into different on-board holding bins. It is trying to sort on-board the machine while harvesting, as opposed to after. In contrast, the claimed invention is processing seed after harvest.

Dawson discloses a mobile crop harvester that has on-board a diverter that can divert harvested substances into two or more compartments. As discussed at column 3, lines 12-17, Dawson discloses a harvester to split or divert portions of a continuous strain of harvested crop "into one or a plurality of storage compartments 5a, 5b, etc." A control unit decides which storage compartment to divert portions of the bulk harvested crop into. Therefore, Bhide and Dawson are widely divergent technologies. There is no suggestion of combining teachings from a mobile harvesting combine unit adopted to split a flowing bulk stream of harvested crop between multiple holding containers (Dawson) and a laboratory-type fixed robotic machine that picks up numerous individual seeds and accurately moves them to indexed compartments to germinate and grow the seeds into plants in a controlled environment. A *prima facie* case of obviousness requires first that the cited references have a teaching or suggestion to combine their relevant teachings. This is absent between Bhide and Dawson.

Further distinctions between Bhide and the claimed invention have been previously set forth in Applicant's prior responses, which are incorporated by reference herein. However, to attempt to advance prosecution of the present application, independent claim 1 has been amended to further support and clarify the distinctions of the methodology of claim 1 from the cited references. Examples follow:

(1) The preamble has been changed to "A method of automated seed conditioning ...". Support for this is found throughout the Applicant's Specification (e.g., page 3 lines 1-16). This is distinctly and explicitly different than the technologies of Bhide or Dawson. Bhide is a machine to grab and deposit individual seeds into pre-formed individual containers or wells to germinate the seeds and grow them into plants for evaluation of the plants. Dawson is a harvester machine.

(2) The preamble has also been changed to describe the aspect of the invention relating to at least two operations on the seed between an input and an output. Normal seed conditioning requires operations such as cleaning and sorting. Claim 1 is now requiring at least two operations. Bhide moves the seeds to the wells. Thereafter they germinate into plants. Dawson harvests a crop and deposits it into compartments. Each reference does speak about certain analytical steps but not in a seed conditioning context.

(3) Element (b) has been amended to further make it clear Applicant's claim 1 conveys individual sets of seed in a segregated fashion from other sets without an individual container or correlated to physical location and physical space via a coordinate system. As previously described, Bhide uses a robotic X-Y-Z positioner -- which operates on the principle of a pre-defined physical space coordinate system such that the controller knows where the working components of the positioner are within that coordinate system. Dawson does not handle individual sets of seed but a continuous stream of harvested crop.

(4) Element (c) has been clarified to add that each set of seed progresses through the two or more operations in a controlled fashion. Bhide does not have any progression through operations on seed between an input and an output. Dawson does not have a controlled progression of individual sets of seed.

(5) Element (c) has been amended to specifically include the aspect that the operations comprise cleaning seed and sorting seed. Bhide is not a seed conditioner that conducts such combination of steps nor is Dawson.

(6) New element (d) further clarifies each set of seed as conveyed to the output and tracking verifies which set of seed is at the output. Bhide has no "output". Dawson has no way

of tracking sets of seed through its system and verifying which set is which at its storage compartments.

(7) New elements (f) and (g) relate to separating undesired non-seed or seed from the end product and maintaining segregation of the end product for each set of seed. Bhide has no such teaching or application as it simply deposits seed in wells of an index tray and grows the seed in the plants. Dawson discloses a discharge mechanism 7 but that relates to unloading its storage compartments. It does not segregate sets of seed that enter an input and maintain that segregation to an output.

It is therefore respectfully submitted that claim 1, as amended, is not obvious in view of Bhide and Dawson. As previously set forth, there is no suggestion of combining Bhide and Dawson. However, even if the teachings are combined, material limitations are lacking in any such combination. It is therefore respectfully submitted independent claim 1 is allowable over Bhide and Dawson.

The prior art references must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). There is no prima facie case of obviousness because one more features of a claim are missing from the prior art relied upon.

Under 35 U.S.C. § 100 and § 101, the Patent Statute makes clear that method claims are patentable if they relate to a new and non-obvious use of old apparatus. It is respectfully submitted the combination of material limitations of amended claim 1 are neither taught nor suggested by the cited references.

Furthermore, there is no showing of any motivation to modify the cited references towards Applicant's claim 1. Basically, there would be no motivation to put multiple sets of seeds in individual containers or accumulate seed at an output, or even clean and sort seed as a

part of its conveying process. It is nonanalogous to a seed conditioning method. Similarly, Dawson is a crop harvester, not a seed conditioner. It is nowhere relevant or analogous to starting with individual harvested sets of seeds and sending them through a conditioning process. It is harvesting live plants.

Claims 2-18 and 20-23 are dependent on claim 1 and submitted to be allowable for the reasons expressed in support of amended claim 1.

2. Claims 119-136, 138 and 141 -- Bhide in view of Codding

Claims 119-136, 138 and 141 stand rejected as obvious on the basis of Bhide in view of Codding, U.S. 4,697,709. This rejection is respectfully traversed.

Codding discloses an optical sorter for agricultural products. It does separate seed between desired material and undesired material. However, there is no *prima facie* showing that it should be combined with the primary reference Bhide, for similar reasons expressed in the remarks regarding the previous obviousness rejection. Bhide is not a seed sorter or conditioner. There would be no suggestion of combination of Bhide and Codding.

However, even if combined, material limitations of amended independent claim 119 are completely missing in such combination. Independent claim 119 has been amended similarly to amended claim 1. Therefore, it is respectfully submitted independent claim 119, and its dependent claims 120-136, 138, and 141 are allowable over the cited Bhide and/or Codding.

3. Claims 24 and 25 -- Bhide in view of Dawson and Codding

Claims 24 and 25 stand rejected as obvious based on Bhide in view of Dawson and further in view of Codding. Each of those references has been discussed previously. Claims 24 and 25 are dependent on amended claim 1 and are submitted to be allowable for the reasons expressed in support of amended claim 1.

4. Claims 142 and 143 -- Bhide in view of Codding

Claims 142 and 143 stand rejected as obvious on the basis of Bhide in view of Codding. Claims 142 and 143 are dependent on amended claim 119 and submitted to be allowable for the reasons expressed in support of amended claim 119.

5. Claims 1-5, 7, 10, 12-19, 21-23 -- Keller in view of Dawson

Claims 1-5, 7, 10, 12-19, 21-23 stand rejected as obvious on the basis of Keller U.S. 6,705,827 in view of Dawson. This rejection is respectfully traversed.

Keller is similar to Bhide. It utilizes a robotic machine that transfers particles such as seeds from one container to another. Keller has been discussed at length in Applicant's prior response, which is incorporated by reference herein. For the same or similar reasons as expressed with respect to the combination of Bhide and Dawson, it is respectfully submitted Keller and Dawson likewise do not present a *prima facie* case of obviousness. It is respectfully submitted that amended claim 1, and dependent claims 2-5, 7, 10, 12-19, and 21-23 are allowable for the same reasons expressed in support of amended claim 1 under the obviousness rejection based on Bhide in view of Dawson.

6. Claims 119-123, 125, 128, 130-137, 139-141 -- Keller in view of Codding

Claims 119-123, 125, 128, 130-137, 139-141 stand rejected as obvious based on Keller in view of Codding. For reasons similar to those previously expressed, it is submitted that Keller and Codding do not present a *prima facie* case of obviousness of these claims.

7. Claims 24 and 25 -- Keller in view of Dawson and Codding

Claims 24 and 25 stand rejected as obvious based on Keller in view of Dawson and Codding. These claims are dependent from amended claim 1 and submitted to be allowable for the reasons expressed in support of amended claim 1.

8. Claims 142 and 143 -- Keller in view of Coddling and Dawson

Claims 142 and 143 stand rejected as obvious on the basis of Keller in view of Coddling and Dawson. These claims are dependent on amended claim 119 and is submitted to be allowable for the reasons expressed in support of amended claim 119.

9. Claims 1-3, 7, 10, 15-17 -- Peebles in view of Dawson

Claims 1-3, 7, 10, 15-17 stand rejected under 35 U.S.C. § 103 as being obvious in view of Peebles 1,057,877 in view of Dawson. This rejection is respectfully traversed.

Peebles has been previously discussed in Applicant's prior responses which are incorporated by reference herein. It basically is the indexing tray shown in Bhide -- the tray into which individual seeds are placed in individual wells to germinate and grow. There is no aspect of seed conditioning disclosed in Peebles. As previously discussed, the same is true of Dawson.

There is no *prima facie* case of obviousness because there is no suggestion to combine a device to hold individual seed in individual small partitioned wells (Peebles) on a mobile harvesting machine (Dawson). Even if combined, the combined teaching of Dawson and Peebles does not disclose the method of amended claim 1. There is no conveying of sets of seed in batches through two or more operations in Peebles or Dawson. There is no tracking of identity and progression of segregated sets of seed through either reference. Other material limitations are lacking. Therefore, it is respectfully submitted that claims 1-3, 7, 10, and 15-17 are patentable over Peebles in view of Dawson.

10. Claims 119-121, 125, 128, and 133-135 -- Peebles in view of Coddling

Claims 119-121, 125, 128, and 133-135 stand rejected as obvious based on Peebles in view of Coddling. These claims are submitted to be patentable for the same reasons expressed in support of the immediate preceding obviousness rejection. Coddling is essentially an optical

sorter device. Even if combined with Peeples, it would not teach or suggest the entire set of method steps in independent claim 119 or its dependent claims.

11. Claims 24 and 25 -- Peeples in view of Dawson and Coddington

Claims 24 and 25 stand rejected as obvious on the basis of Peeples in view of Dawson and further in view of Coddington. Claims 24 and 25 are dependent on amended claim 1 and submitted to be allowable for the reasons expressed in support thereof.

12. Claims 142 and 143 -- Peeples in view of Coddington and Dawson

Claims 142 and 143 stand rejected as obvious based on Peeples in view of Coddington and Dawson. These claims are dependent upon amended claim 119 and submitted to be allowable for the reasons expressed in support of it.

It is therefore respectfully submitted all claims are allowable over the cited art under the obviousness rejections. Independent claims 1 and 119 have been amended to try to emphasize the clear differences between the Applicants' claimed invention and the cited references. It is respectfully submitted that independent claims 1 and 119, and their dependent claims, are not obvious and are allowed over the rejections of record.

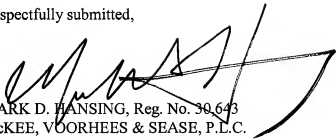
C. CONCLUSION

It is respectfully submitted all matters raised in the Office Action have been addressed and remedied and that the application is in form for allowance. Favorable action is respectfully requested.

It is not believed any fees or extensions of time are required for entry of this response, but if any has been inadvertently overlooked, please consider this a request therefore and charge any required fees to Deposit Account 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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